The Journal of

Steroid Biochemistry & Molecular Biology

Editors-in-chief
J. R. PASQUALINI and R. SCHOLLER

VOLUME CONTENTS,
SUBJECT AND AUTHOR INDEX

Volume 48
1994

Pergamon

The Journal of
Steroid Biochemistry and Molecular Biology

EDITORS-IN-CHIEF

J. R. Pasqualini and R. Scholler

Foundation for Hormone Research, 26 Boulevard Brune, 75014 Paris, France

ASSOCIATE EDITORS

H. Adlercreutz, Helsinki, Finland
M. Beato, Marburg/Lahn, Germany
B. Groner, Freiburg, Germany
E. Gurpide, New York, U.S.A.
J.-Å. Gustafsson, Huddinge, Sweden
E. V. Jensen, Hamburg, Germany
J. Kato, Yamanashi-ken, Japan
R. J. B. King, Guildford, England
M. E. Lippman, Washington, DC, U.S.A.
L. Martini, Milan, Italy
A. Munck, Hanover, NH, U.S.A.
B. W. O'Malley, Houston, TX, U.S.A.
D. O. Toft, Rochester, MN, U.S.A.

CORRESPONDING EDITORS

A. Aakvaag, Bergen, Norway
A. S. Bhatnagar, Basel, Switzerland
R. Bouillon, Leuven, Belgium
A. Brodie, Baltimore, U.S.A.
M. L. Casey, Dallas, U.S.A.
K. J. Catt, Bethesda, U.S.A.
J. A. Cidlowski, Chapel Hill, U.S.A.
P. D. Darbre, Reading, England
G. Daxenbichler, Innsbruck, Austria
E. R. DeSombre, Chicago, U.S.A.
B. N. Díaz-Chico, Las Palmas, Spain
R. B. Dickson, Washington, U.S.A.
M. Dowsett, London, England
M. L. Dufau, Bethesda, U.S.A.
D. P. Edwards, Denver, U.S.A.
H. A. Eriksson, Stockholm, Sweden
A. N. Fejes-Toth, Hanover, U.S.A.
K. Fotherby, London, England
J. W. Funder, Prahran, Australia
G. Greene, Chicago, U.S.A.
H. Gronemeyer, Strasbourg, France
H. Honjo, Kyoto, Japan
K. B. Horwitz, Denver, U.S.A.
I. Huhtaniemi, Turku, Finland
V. H. T. James, London, England
V. C. Jordan, Chicago, U.S.A.
B. S. Katzenellenbogen, Urbana, U.S.A.
A. M. Kaye, Rehovot, Israel
E. R. de Kloet, Leiden, The Netherlands
L. Kloosterboer, Oss, The Netherlands
F. Labrie, Quebec, Canada
S. Liao, Chicago, U.S.A.
V. B. Mahesh, Augusta, U.S.A.
B. S. McEwen, New York, U.S.A.
H. Michna, Berlin, Germany
E. Milgrom, Le Kremlin-Bicêtre, France
W. R. Miller, Edinburgh, Scotland
J. Müller, Zurich, Switzerland
B. E. P. Murphy, Montreal, Canada
L. J. Murphy, Winnipeg, Canada
M. I. New, New York, U.S.A.
A. W. Norman, Riverside, U.S.A.
T. Ojasoo, Montrouge, France
M. J. Parker, London, England
G. Pérez-Palacios, Mexico City, Mexico
W. B. Pratt, Ann Arbor, U.S.A.
J. P. Raynaud, Paris, France
R. Renkawitz, Giessen, Germany
H. Rochefort, Montpellier, France
G. Rousseau, Brussels, Belgium
B. Sato, Osaka City, Japan
M. Serio, Florence, Italy
E. R. Simpson, Dallas, U.S.A.
J. Sjövall, Stockholm, Sweden
L. Stárka, Prague, Czech Republic
J. F. Strauss III, Philadelphia, U.S.A.
R. L. Sutherland, Darlinghurst, Australia
J. R. Tata, London, England
W. Taylor, Tynemouth, England
P. Tuohimaa, Tampere, Finland
G. Verhoeven, Leuven, Belgium
A. Vermeulen, Ghent, Belgium
R. Vihko, Oulu, Finland
C. A. Villee, Boston, U.S.A.
A. E. Wakeling, Macclesfield, England
C. R. Wira, Hanover, U.S.A.

Publishing Office

(*Production Editor*: Andrea Lane)
Elsevier Science Ltd, Bampfylde Street, Exeter EX1 2AH, England
[*Tel.* Exeter (0392) 51558; *Fax* 425370]

Subscription and Advertising Offices

North America: Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.
Rest of the World: Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, England
[*Tel.* Oxford (0865) 843000; *Fax:* (0865) 843010]

Publication Frequency (1994)

Published semi-monthly in 4 volumes.

Subscription Rates (1994)

Annual Institutional Subscription Rates (1994): North, Central and South America, US$1820.00; Rest of World, £1182.00. Associated Personal Subscription Rates are available on request for those whose institutions are library subscribers. Sterling prices exclude VAT. Non-VAT registered customers in the European Community will be charged the appropriate VAT in addition to the price listed. Prices include postage and insurance and are subject to change without notice.

Back Issues

Back issues of all previously published volumes, in both hard copy and in microform, are available direct from Elsevier Science offices.

Second class postage paid at RAHWAY NJ and additional mailing offices. Postmaster send address corrections to *The Journal of Steroid Biochemistry and Molecular Biology*, c/o Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.

Copyright © 1994 Elsevier Science Ltd

LIST OF CONTENTS

JANUARY

Editorial Addresses	v	
Steroid Nomenclature	ix	
General Review		
Paul Prendergast, Sergio A. Oñate, Kurt Christensen and Dean P. Edwards	1	Nuclear accessory factors enhance the binding of progesterone receptor to specific target DNA
Minireview		
Maria I. New	15	21-Hydroxylase deficiency congenital adrenal hyperplasia
Papers		
Anne Hansen Ree, Kjetil Taskén and Vidar Hansson	23	Regulation of glucocorticoid receptor (GR) mRNA and protein levels by phorbol ester in MCF-7 cells. Mechanism of GR mRNA induction and decay
T. Ojasoo, J. P. Raynaud and J. C. Doré	31	Affiliations among steroid receptors as revealed by multivariate analysis of steroid binding data
O. Ortmann, F. Merelli, S. S. Stojilkovic, K.-D. Schulz, G. Emons and K. J. Catt	47	Modulation of calcium signaling and LH secretion by progesterone in pituitary gonadotrophs and clonal pituitary cells
T. Battmann, A. Bonfils, C. Branche, J. Humbert, F. Goubet, G. Teutsch and D. Philibert	55	RU 58841, a new specific topical antiandrogen: a candidate of choice for the treatment of acne, androgenetic alopecia and hirsutism
Y.-H. Zhuang, T. Ylikomi, M. Lindfors, S. Piippo and P. Tuohimaa	61	Immunolocalization of retinoic acid receptors in rat, mouse and human ovary and uterus
Salman M. Hyder and George M. Stancel	69	*In vitro* interaction of uterine estrogen receptor with the estrogen response element present in the 3′-flanking region of the murine c-*fos* protooncogene
R. Hampl, O. Lapčík, J. Šulcová, L. Stárka, B. Kalvachová, M. Dvořáková, D. Němcová and J. Hoza	81	The effect of long-term glucocorticoid therapy on glucocorticoid receptor content and on steroid response to ACTH
Leszek Markiewicz and Erlio Gurpide	89	Estrogenic and progestagenic activities coexisting in steroidal drugs: quantitative evaluation by *in vitro* bioassays with human cells
S. M. Kelsey, R. D. Coldwell, H. L. J. Makin, D. Syndercombe-Court and A. C. Newland	95	Neopterin release by myeloid leukaemic cells can be synergistically augmented by 1,25-dihydroxyvitamin D3 in combination with gamma interferon or granulocyte-macrophage colony stimulating factor
Jack-Michel Renoir, Stéphane Le Bihan, Christine Mercier-Bodard, Alex Gold, Merhdad Arjomandi, Christine Radanyi and Etienne-Emile Baulieu	101	Effects of immunosuppressants FK506 and Rapamycin on the heterooligomeric form of the progesterone receptor
G. Teutsch, F. Goubet, T. Battmann, A. Bonfils, F. Bouchoux, E. Cerede, D. Gofflo, M. Gaillard-Kelly and D. Philibert	111	Non-steroidal antiandrogens: synthesis and biological profile of high-affinity ligands for the androgen receptor
Amina Dassouli, Michèle Manin, Georges Veyssiere and Claude Jean	121	Androgens regulate expression of the gene coding for a mouse vas deferens protein related to the aldo–keto reductase superfamily in epithelial cell subcultures
F. Paris, G. F. Weinbauer, V. Blüm and E. Nieschlag	129	The effect of androgens and antiandrogens on the immunohistochemical localization of the androgen receptor in accessory reproductive organs of male rats
Jayasri Ghose-Dastidar, Reza Green and J. B. Alexander Ross	139	Identification of the cysteine in the steroid-binding site of human corticosteroid binding globulin by site-directed mutagenesis and site-specific chemical modification
I. Jung-Testas, M. Schumacher, P. Robel and E. E. Baulieu	145	Actions of steroid hormones and growth factors on glial cells of the central and peripheral nervous system
Younes Maaroufi and Guy Leclercq	155	Importance of A/B and C domains of the estrogen receptor for its adsorption to hydroxylapatite
Announcements	I	

FEBRUARY

Papers

Joris Winderickx, Inge Vercaeren, Guido Verhoeven and Walter Heyns — 165 Androgen-dependent expression of cystatin-related protein (CRP) in the exorbital lacrimal gland of the rat

Marianthi Evagelatou and John Farrant — 171 Effect of 17β-estradiol on immunoglobulin secretion by human tonsillar lymphocytes *in vitro*

Paul Y. Sze and Zafar Iqbal — 179 Glucocorticoid actions on synaptic plasma membranes: modulation of [^{125}I] calmodulin binding

P. Van de Velde, F. Nique, F. Bouchoux, J. Brémaud, M-C. Hameau, D. Lucas, C. Moratille, S. Viet, D. Philibert and G. Teutsch — 187 RU 58 668, a new pure antiestrogen inducing a regression of human mammary carcinoma implanted in nude mice

Mark A. Levy, Martin Brandt, Kristina M. Sheedy, Jeffrey T. Dinh, Dennis A. Holt, Linda M. Garrison, Derk J. Bergsma and Brian W. Metcalf — 197 Epristeride is a selective and specific uncompetitive inhibitor of human steroid 5α-reductase isoform 2

R. Krattenmacher, R. Knauthe, K. Parczyk, A. Walter, U. Hilgenfeldt and K. H. Fritzemeier — 207 Estrogen action on hepatic synthesis of angiotensinogen and IGF-I: direct and indirect estrogen effects

Harpal S. Purba, Elaine J. King, Paul Richert and Ajay S. Bhatnagar — 215 Effect of aromatase inhibitors on estrogen 2-hydroxylase in rat liver

Gunnar Söderqvist, Håkan Olsson, Nils Wilking, Bo von Schoultz and Kjell Carlström — 221 Metabolism of estrone sulfate by normal breast tissue: influence of menopausal status and oral contraceptives

S. de Lauzon, K. M. Rajkowski and N. Cittanova✠ — 225 Investigation of a 17β-estradiol-monoclonal antiestradiol antibody binding mechanism using dilute solutions of organic solvents

Y. O'Connell, T. J. McKenna and S. K. Cunningham — 235 The effect of prolactin, human chorionic gonadotropin, insulin and insulin-like growth factor 1 on adrenal steroidogenesis in isolated guinea-pig adrenal cells

E. Di Salle, G. Briatico, D. Giudici, G. Ornati and A. Panzeri — 241 Endocrine properties of the testosterone 5α-reductase inhibitor turosteride (FCE 26073)

Shizuo Nakajin, Yoshiko Fujita, Shuji Ohno, Mihoko Uchida, Masatada Aoki and Masato Shinoda — 249 Purification and characterization of 3α/β-hydroxysteroid dehydrogenase from mature porcine testicular cytosol

Edmund Maser and Gudula Bannenberg — 257 The purification of 11β-hydroxysteroid dehydrogenase from mouse liver microsomes

M. Zenatti, N. Blanchouin-Emeric, S. Koplewicz, G. Defaye and B. Aupetit-Faisant — 265 Suramin: an inhibitor of the final steps of the mineralocorticoid pathway?

Matthew C. Wright, Alan J. Paine, Paul Skett and Robert Auld — 271 Induction of rat hepatic glucocorticoid-inducible cytochrome *P*450 3A by metyrapone

M. Gani, J. Coley, J. Piron, A. S. Humphreys, J. Arevalo, I. A. Wilson and M. J. Taussig — 277 Monoclonal antibodies against progesterone: effect of steroid-carrier coupling position on antibody specificity

Sara Antonia Li, Yan Xue, Qiu Xie, Christopher I. Li and Jonathan J. Li — 283 Serum and tissue levels of estradiol during estrogen-induced renal tumorigenesis in the Syrian hamster

M. Feuilloley, O. Lesouhaitier, C. Delarue, S. De Marchis, J. M. Conlon, H. A. Bern and H. Vaudry — 287 *In vitro* study of the effect of urotensin II on corticosteroid secretion in the frog *Rana ridibunda*

Shehnaz B. Patel, Ikram Khatkhatay, Meena P. Desai, Shrikant S. Betrabet and Villi S. Toddywalla — 293 A sensitive ELISA for 6β-hydroxycortisol in urine using enzyme penicillinase (β-lactamase)

Annette LaMorte, Narender Kumar, C. Wayne Bardin and Kalyan Sundaram — 297 Aromatization of 7α-methyl-19-nortestosterone by human placental microsomes *in vitro*

Corrigendum — 305

MARCH

Papers

Sylvette Ayala-Torres, Betty H. Johnson and E. Brad Thompson — 307 Oxysterol sensitive and resistant lymphoid cells: correlation with regulation of cellular nucleic acid binding protein mRNA

P. De Vos, F. Claessens, L. Celis, B. Peeters, W. Rombauts, W. Heyns and G. Verhoeven — 317 Nuclear extracts enhance the interaction of fusion proteins containing the DNA-binding domain of the androgen and glucocorticoid receptor with androgen and glucocorticoid response elements

M. Borrás, L. Hardy, F. Lempereur, A. H. El Khissiin, N. Legros, R. Gol-Winkler and G. Leclercq — 325 Estradiol-induced down-regulation of estrogen receptor. Effect of various modulators of protein synthesis and expression

Karen E. Sheppard — 337 Calcium and protein kinase C regulation of the glucocorticoid receptor in mouse corticotrope tumor cells

Sylvie Délos, Catherine Iehlé, Pierre-Marie Martin and Jean-Pierre Raynaud — 347 Inhibition of the activity of 'basic' 5α-reductase (type 1) detected in DU 145 cells and expressed in insect cells

Piera Rebuffat, Anna S. Belloni, Francesco G. Musajo, Stefano Rocco, Anna Markowska, Guiseppina Mazzocchi and Gastone G. Nussdorfer — 353 Evidence that endogenous somatostatin (SRIF) exerts an inhibitory control on the function and growth of rat adrenal zona glomerulosa. The possible involvement of zona medullaris as a source of endogenous SRIF

F. Cadepond, N. Jibard, N. Binart, G. Schweizer-Groyer, I. Segard-Maurel and E. E. Baulieu — 361 Selective deletions in the 90 kDa heat shock protein (hsp90) impede hetero-oligomeric complex formation with the glucocorticosteroid receptor (GR) or hormone binding by GR

Charles N. Falany, James Wheeler, Tae Sung Oh and Josie L. Falany — 369 Steroid sulfation by expressed human cytosolic sulfotransferases

Eisuke P. Murono, Amie L. Washburn and Deborah P. Goforth — 377 Enhanced stimulation of 5α-reductase activity in cultured Leydig cell precursors by human chorionic gonadotropin

Rubén W. Carón, Ana M. Salicioni and Ricardo P. Deis — 385 Mifepristone treatment demonstrates the participation of adrenal glucocorticoids in the regulation of oestrogen-induced prolactin secretion in ovariectomized rats

Siegfried Schwarz and Peter Pohl — 391 Steroids and opioid receptors

U. Kuhnle, U. Lindl, U. Keller, D. Armanini, M. Meurer and S. Baur — 403 Androgen binding sites in peripheral human mononuclear leukocytes of healthy males and females

D. B. Gower, K. T. Holland, A. I. Mallet, P. J. Rennie and W. J. Watkins — 409 Comparison of 16-androstene steroid concentrations in sterile apocrine sweat and axillary secretions: interconversions of 16-androstenes by the axillary microflora—a mechanism for axillary odour production in man?

APRIL

General Review

Liam J. Murphy — 419 Growth factors and steroid hormone action in endometrial cancer

Papers

Donald P. McDonnell, Mauouchehr M. Shabaz, Elisabetta Vegeto and Mark E. Goldman — 425 The human progesterone receptor A-form functions as a transcriptional modulator of mineralocorticoid receptor transcriptional activity

Alice H. Cavanaugh and S. Stoney Simons Jr — 433 Factor-assisted DNA binding as a possible general mechanism for steroid receptors. Functional heterogeneity among activated receptor–steroid complexes

Marie Salomonsson, Johan Häggblad, Bert W. O'Malley and Gisela M. Sitbon — 447 The human estrogen receptor hormone binding domain dimerizes independently of ligand activation

Norbert Schütze, Günter Vollmer and Rudolf Knuppen — 453 Catecholestrogens are agonists of estrogen receptor dependent gene expression in MCF-7 cells

Hubert H. Thole — 463 The side chains responsible for the dimerization of the estradiol receptor by ionic bonds are lost in a 17 kDa fragment extending downstream from aa 303

E. L. Elfahime, J. M. Félix and B. Koch — 467 Antagonistic effects of retinoic acid and triiodothyronine in the expression of corticoid-binding globulin (CBG) by cultured fetal hepatocytes

Anu Pekki, Timo Ylikomi, Heimo Syvälä and Pentti Tuohimaa — 475 Progesterone receptor and hsp90 are not complexed in intact nuclei

Christopher J. Newton, Rosa Buric, Thorsten Trapp, Steffi Brockmeier, Uberto Pagotto and Günter K. Stalla	481	The unliganded estrogen receptor (ER) transduces growth factor signals
Günter Vollmer, Horst Michna, Martin R. Schneider and Rudolf Knuppen	487	Stromal expression of tenascin is inversely correlated to epithelial differentiation of hormone dependent tissues
Lawrence B. Hendry, Chung K. Chu, John A. Copland and Virendra B. Mahesh	495	Antiestrogenic piperidinediones designed prospectively using computer graphics and energy calculations of DNA–ligand complexes
Giuseppina Mazzocchi, Ludwik K. Malendowicz and Gastone G. Nussdorfer	507	Stimulatory effect of vasoactive intestinal peptide (VIP) on the secretory activity of dispersed rat adrenocortical cells. Evidence for the interaction of VIP with ACTH receptors
Alfred v. Krempelhuber, Frank Müller and Ulrike Fuhrmann	511	DNA-binding of androgen receptor overexpressed in mammalian cells
Gian Paolo Rossini and Claudia Malaguti	517	The subcellular distribution of glucocorticoid–receptor complexes as studied by chemical crosslinking of intact HTC cells
A. Purohit, N. M. Howarth, B. V. L. Potter and M. J. Reed	523	Inhibition of steroid sulphatase activity by steroidal methylthiophosphonates: potential therapeutic agents in breast cancer
Naoko Mouri Yamada, Shuji Hirata and Junzo Kato	529	Distribution and postnatal changes of aromatase mRNA in the female rat brain
Annu Makker, M. M. Singh, S. R. Chowdhury, S. C. Maitra and V. P. Kamboj	535	Uterine estradiol and progesterone receptor concentration in relation to circulating hormone levels and histoarchitecture during high endometrial sensitivity and induced decidualization in guinea pigs
M. W. Khalil, B. Strutt, D. Vachon and D. W. Killinger	545	Effect of dexamethasone and cytochrome *P*450 inhibitors on the formation of 7α-hydroxydehydroepiandrosterone by human adipose stromal cells
C. Longcope, C. Flood and J. Tast	553	The effects of ovariectomy and progesterone on peripheral aromatization in the female rhesus monkey
Kaoru Nasuda, Akira Endoh and Yoshio Igarashi	557	Biphasic regulation by N^6,2′-*O*-dibutyryl adenosine 3′,5′-cyclic monophosphate (dbcAMP) of steroid 21-hydroxylase activity in rat hepatocytes
T. R. Jeffry Evans, Martin G. Rowlands, Surinder S. Sahota and R. Charles Coombes	563	Lack of inhibition of placental estrone sulfatase and aromatase enzymes by vitamin D_3 and its analogs
Norihiro Kobayashi, Akihiko Hisada and Kazutake Shimada	567	Specificity of the polyclonal antibodies raised against a novel 25-hydroxyvitamin D_3–bovine serum albumin conjugate linked through the C-11α position
Wilhelm Kuhnz, Barbara Schütt and Rolf Woloszczak	573	Influence of changes in the concentration of sex hormone-binding globulin in human serum on the protein binding of the contraceptive steroids levonorgestrel, 3-keto-desogestrel and gestodene
Book Reviews	581	